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CLAIMS

1. A variable geometry turbine comprising a turbine wheel having radial blades and supported in a housing for rotation about an axis, an annular inlet passageway extending radially inwards towards the turbine wheel, the inlet passageway being defined between an annular wall of a moveable wall member and a facing wall of the housing, the moveable wall member being moveable relative to the housing to vary the width of the inlet passageway, an annular array of vanes extending across the inlet passageway, the vanes having leading and trailing edges, a width defined between the leading and trailing edges and a height extending generally parallel to the axis of the turbine wheel, wherein the height varies across the width of the vanes from a maximum to a minimum, the minimum height being less than the axial width of the turbine blade tips.
2. A variable geometry turbine according to claim 1, wherein the minimum height of the vanes is greater than the minimum width of the inlet passageway.
3. A variable geometry turbine according to claim 2, wherein the minimum height is defined at the trailing edge of the vanes.
4. A variable geometry turbine according to any preceding claim, wherein the maximum height of the vanes is greater than the maximum width of the inlet passageway.
5. A variable geometry turbine according to any preceding claim, wherein the difference between the minimum height and the maximum height is no less than the axial width of the turbine blade tips.
6. A variable geometry turbine according to any preceding claim, wherein the vanes have a maximum width portion and a reduced width portion and a sharp transition in vane height between the two.

7. A variable geometry turbine according to any preceding claim, wherein the maximum height is defined along the leading edge of the vanes.

8. A variable geometry turbine according to claim 7, wherein the vane height is substantially constant across part of the width of the vane adjacent the leading edge and then reduces to the minimum height adjacent the trailing edge.

9. A variable geometry turbine according to claim 8, wherein the height the vane height is substantially constant across a part of the width of the vane adjacent the trailing edge.

10. A variable geometry turbine according to claim 9, wherein the vanes are supported by the moveable wall member.

11. A variable geometry turbine according to claim 10, wherein said facing wall of the turbine housing is provided with an annular recess to receive said vanes as the moveable wall member is moved towards said facing wall.

12. A variable geometry turbine according to claim 11, wherein said annular recess is covered by a cover provided with slots to receive said vanes.

13. A variable geometry turbine according to any preceding claim, wherein the moveable wall member is mounted in an annular cavity provided within said housing, the maximum inlet width being defined when the annular wall of the moveable wall member lies flush with the opening of the cavity, and wherein the wall member is retractable into the cavity.
